

Remarks

Claims 15 and 21 have been amended. Exemplary support for these amendments may be found in the specification at page 7, line 28 through page 9, line 13; page 21, line 31; and page 22, lines 28-31. In addition, claims 15 and 21 have been amended to more clearly define Applicants' claimed subject matter. No new matter has been introduced by any of the amendments.

1. Rejection under 35 U.S.C. § 102(b) or § 103(a) over the '856 patent

Claims 15-24 and 26 are rejected as anticipated by, or in the alternative, as obvious over JP 2-2856 ("the '856 patent"). The Examiner asserts that the '856 patent teaches a porous film for liquid filtration comprised of a polyimide resin with Applicants' claimed mean pore size and thickness that is obtained from the combination of a biphenyltetracarboxylic dianhydride component and a diaminodiphenylether component. The Examiner acknowledges that the '856 patent does not disclose a film having (i) fine continuous channels reaching to both surfaces in a non-linear fashion or (ii) Applicants' claimed porosity, air resistance, heat resistance, heat shrinkage or dielectric constant. However, the Examiner considers these properties to be inherent in the films taught by the '856 patent.

Applicants respectfully disagree with the Examiner's assessment of the applicability of the '856 patent to Applicants' claimed subject matter. The '856 patent specification discloses that the polyimide film is formed by dissolving a polyimide polymer in a good solvent (*i.e.*, an organic solvent in which the polymer is soluble) and then contacting the resulting solution of the polyimide in the good solvent with the vapor or mist of a poor solvent (*i.e.*, a solvent which forms a solution with the good solvent but in which the polyimide is not soluble) (see page 4, 1st full paragraph). The Example of the '856 patent confirms this procedure as it describes dissolution of a polyimide resin in dimethylformamide, followed by treatment of the solution with steam (water vapor) to cause coagulation of the polymer.

In contrast, Applicants' polyimide resin is formed from a polyimide precursor solution. When such a polyimide precursor solution is used as the starting material, a polyimide film having high strength and high dimensional stability is obtained that is not subject to any limitation of the final polymer. However, because the '856 patent uses the final polymer in the preparation of the solution that leads to the resin film, the film of the '856 patent is limited to the properties, such as solubility, of the final polymer in the organic solvents that are used to dissolve it. In other words, only relatively small molecular weight polyimide pieces would be soluble in an organic solvent, and thus available for comprising a polyimide film. Such a low molecular weight polyimide would exhibit low strength and

high elongation. In contrast, the polyimide resin that comprises Applicants' invention is formed from a solution of a polyimide precursor which contains larger molecular weight pieces such that the polyimide resin that results is quite different from the porous film disclosed in the '856 patent. Because the films can be distinguished from each other, they would therefore have different physicochemical properties such as, for example, porosity, air resistance, heat resistance, heat shrinkage or dielectric constant. For at least these reasons, the '856 patent does not teach Applicants' claimed porous insulating film. Further, there is no suggestion in the '856 specification of using a polymer precursor solution to prepare the polyimide film. Therefore, a person of ordinary skill in this art would not have been motivated to make Applicants' porous film with a reasonable expectation of success. As such, Applicants request that the rejections of claims 15-24 and 26 as anticipated by or obvious in view of the '856 patent be withdrawn.

2. Rejection under 35 U.S.C. § 103(a) over the '856 patent in view of Dorval

Claims 25 and 27 are rejected as being unpatentable over the '856 patent in view of U.S. Patent 5,547,833 to Dorval *et al.* ("Dorval"). The Examiner acknowledges that the '856 patent does not teach that the pores are arranged substantially parallel to the film's surface, but cites Dorval for this teaching.

Applicants respectfully disagree with the Examiner's use of the '856 patent in combination with Dorval in an attempt to render obvious Applicants' claims 25 and 27. As stated in section 1 above, the '856 patent neither teaches nor suggests Applicants' claimed porous insulating film. Dorval cannot remedy this deficiency. Therefore, Applicants request that this rejection of claims 25 and 27 be withdrawn.

3. Double Patenting Rejection

Claims 15-24 and 26 are provisionally rejected under obviousness-type double patenting over claims 15-31 of copending Application No. 10/784,982.

Applicants disagree with the grounds for this provisional rejection. However, in an effort to expedite prosecution of the subject application, Applicants intend to file a terminal disclaimer over Application No. 10/784,982 if the claims in Application No. 10/784,982 are found allowable.

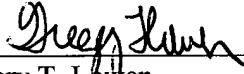
4. **Conclusion**

The foregoing amendments and remarks are being made to place the application in a condition for allowance. Applicant respectfully requests reconsideration and the timely allowance of the pending claims. Should the Examiner find that an interview would be helpful to further prosecution of this application, he is invited to telephone the undersigned at his convenience.

Except for issue fees payable under 37 C.F.R. 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or to credit any overpayment to Deposit Account 50-0310. This paragraph is intended to be a **Constructive Petition for Extension of Time** in accordance with 37 C.F.R. 1.136(a)(3).

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